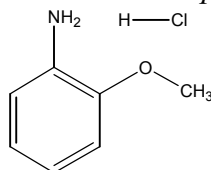


## ***o*-ANISIDINE HYDROCHLORIDE**

**CAS No. 134-29-2**

First Listed in the *Third Annual Report on Carcinogens*



### **CARCINOGENICITY**

*o*-Anisidine hydrochloride is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (NCI 89, 1978; IARC V.27, 1982; IARC S.7, 1987). When administered in the diet, *o*-anisidine hydrochloride induced transitional cell carcinomas of the urinary bladder in mice and rats of both sexes. It also induced transitional cell carcinomas of the renal pelvis and increased the incidence of follicular cell adenomas, carcinomas, papillary cystadenomas, and cystadenocarcinomas of the thyroid in male rats.

There are no adequate data available to evaluate the carcinogenicity of *o*-anisidine hydrochloride in humans (IARC V.27, 1982; IARC S.7, 1987).

### **PROPERTIES**

*o*-Anisidine is a colorless-to-pink or yellowish liquid with a fishy odor. It is practically insoluble in water and is miscible with alcohol, ether, acetone, and benzene. *o*-Anisidine hydrochloride is a white crystalline solid which is water soluble. When heated to decomposition, *o*-anisidine hydrochloride emits toxic fumes of nitrogen oxides ( $\text{NO}_x$ ) and hydrochloric acid.

### **USE**

*o*-Anisidine hydrochloride, an industrial product reported to be used in the manufacture of dyes, is a possible ingredient in oxidizing ("permanent") hair dyes. *o*-Anisidine has been used to produce six commercial dyes and pigments (SR1b, 1983). This chemical is also used as an intermediate in the production of synthetic guaiacol. Chloro, nitro, alkyl, and aryl derivatives of *o*-anisidine are also used in the synthesis of azo dyes (IARC V.27, 1982).

### **PRODUCTION**

The 1998 *Chemical Buyers Directory* lists seven suppliers of *o*-anisidine but none for its hydrochloride (Tilton, 1997). The 1997 *Directory of Chemical Producers* lists no producers for *o*-anisidine and *o*-anisidine hydrochloride (SR1a, 1997). CPSC was unable to find any suppliers for *o*-anisidine hydrochloride in its use as a dye intermediate. *o*-Anisidine was imported in an unspecified quantity in 1985 (USDOC Imports, 1986). In 1983, the United States imported 1.25 million lb of *o*-anisidine (USITCa, 1984). According to NCI, the United States imported 2.4 million lb of *o*-anisidine through its principal customs districts in 1980. In 1979, imports of *o*-anisidine and its meta- and para-isomers amounted to 3.2 million lb (USITCa, 1980). The 1979 TSCA Inventory identified four companies producing 660,000 lb of *o*-anisidine and eight

companies importing 165,000 lb in 1977, with some site limitations (TSCA, 1979). Information on production of *o*-anisidine hydrochloride was not reported in the TSCA Inventory. No data are available on imports of *o*-anisidine hydrochloride or on exports of either compound.

## EXPOSURE

The primary routes of potential human exposure to *o*-anisidine hydrochloride are inhalation and dermal contact. According to CPSC, residual traces of *o*-anisidine may be present in some dyes manufactured from *o*-anisidine and in the final consumer products. Exposure even to trace amounts may be a cause for concern. No data are available on the actual levels of *o*-anisidine in final consumer products. The general population may also be exposed to the chemical through the inhalation of cigarette smoke (IARC V.27, 1982). The National Occupational Hazard Survey, conducted by NIOSH from 1972 to 1974, did not estimate potential worker exposure to *o*-anisidine or to *o*-anisidine hydrochloride, but indicated possible risk of exposure of about 1,800 workers to anisidine derivatives (NIOSH, 1976). The National Occupational Exposure Survey (1981-1983) indicated that 1,108 total workers potentially were exposed to *o*-anisidine hydrochloride in the workplace (NIOSH, 1984).

## REGULATIONS

*o*-Anisidine and *o*-anisidine hydrochloride are subject to report and recordkeeping requirements under the Superfund Amendments and Reauthorization Act (SARA). OSHA has adopted a permissible exposure limit (PEL) of 0.5 mg/m<sup>3</sup> as an 8-hr time-weighted average (TWA) for *o*-anisidine and noted a potential for skin absorption. OSHA regulates *o*-anisidine hydrochloride as a chemical hazard in laboratories under the Hazard Communication Standard. Regulations are summarized in Volume II, Table B-10.